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The Short Arm of Predictive Knowledge on various Cyber topics

In my paper, I will be discussing three cyber security concepts we went over in class and how we either fail to predict where they lead or why we failed. The three topics I will be discussing are Bio cybersecurity, Cybercrime, and Artificial Intelligence. I will go through each one and thoroughly describe why we have failed to predict the future applications and potential issues each topic may have.

The first topic I will be discussing is Bio Cyber Security. Possibly my favorite topic of the paper due to some of the interesting things we have already done in the field. One of said things being the resurrection of previously extinct species. In recent years a company named Colossal Biosciences has been researching and improving the ability to grab DNA from fossils and replicate the DNA in genetically similar species to then make them reproduce, this results in a almost identical animal to a species that was previously extinct. They had accomplished this a few times with smaller animals that were only recently extinct but just last year they brought back an animal bigger than most land animals alive today. This animal is the dire wolf, they did this by finding old dire wolf DNA and genetically hacking into a current Gray wolfs DNA and changing key features making their pregnant embryos 99.9% indistinguishable from the dire wolves of the past. What does this have to do with cyber security? Well this is what bio

cybersecurity is all about, being able to genetically modify down to DNA to change the output just like lines of code.

There are other types of bio cyber security as well like putting malware into DNA as a new way of cyber attacks. As we learned in class one group of scientists figured out how to put a cyber virus into DNA so when a computer read the DNA sequence it would now have the malware from the DNA. This is not really accomplishable on a large scale quite yet and was done in a controlled environment.

We are doing all these amazing things with no thought of what they may mean for the future, I know that in the case of the extinct animals the company creating them does have a long term plan, they want to continue until they have brought back the mammoth then they plan to reintroduce the mammoth into icy ecosystems in the hopes it creates more permafrost from there heavy footsteps. On the other hand, the scientists who created DNA computer viruses just created a brand-new way for hostile actors to infiltrate what they want. They simply thought it would be an interesting thing to see if they could do and did not consider what it may mean for the future.

The next topic I am going to talk about is cybercrime and how we are failing to have laws keep up with the advancements in the cybercriminal field. The average cyber criminal is typically not above our ability to detect or find, but the more advanced professional hackers can get something in and out of without being noticed for at least a good while. Our laws obviously are against things like hacking but we are missing key understandings in the things that follow being caught.

Our justice system is not educated on the cyber area mind a few specialists meant for just that. Often criminals that are arrested and get lawyers are recommended to plead guilty, they do this because they don't know how to argue in court about something that they know very little about. What the lawyers do not know is that it is much more likely that a cyber criminal gets a very light sentence or even found innocent due to the jury being made of common people who also know very little about the field. It is difficult to justify losses and what they are because of their digital nature. Unless the jury is made of much younger people which it is often not, making them understand the case is very difficult for prosecutors, and since the defendant is not the one who has to prove they are guilty they have a much easier case than the prosecution.

To solve this in the future the laws around education in this field needs to become more standard. Introduce a larger computer curriculum in schools and eventually after some time the average person will start to understand the field more and not be as confused when addressing these topics. Once the jury has at least a few people consistently that understands basic computer concepts the trials will be more fair and just.

The last topic I wanted to talk about is Artificial intelligence and the possible implications it may have in the future. AI as we know it today is a great tool, infinitely useful in its applications. We use it today in things like writing, art generation, coding, you name it an AI can most likely do it. It is extremely useful in our everyday lives and will continue to improve, it has only been mainstream for a few years and is already a huge part of all new technologies.

The people who use it today often forget, AI thinks for itself based on some parameters, that means we can only somewhat predict what it will do. You ask it to create a picture of Mike

Tyson in a bunny costume you can picture what it will create but you never know exactly because of its procedural generation. Once AIs get advanced enough that their actions are not so predictable what will that mean. There are numerous movies, books, and stories about this exact thing. We always thought them to be science fiction movies, but now they are closer to being real than I am sure the creators ever thought possible. Movies like Blade Runner and I Robot have autonomous robots that think for themselves. Those movies both take place in distopias, and yet we continue on making robots with AI like we don't know what is possible, of course our programming will prevent some things but what happens when someone creates an AI without enough fail safes and decides to act on its own.

What can we do to prevent this you may ask? We have little to no regulations against AIs at this point and I think we need to start making some. Companies have free reign as they see fit right now when it comes to AI development. We need a new department in the government solely responsible for AI regulation and safety. If this does not happen we will start to see more and more things AI takes over without us being aware until it is too late.

In all the topics I have discussed are all still growing and my opinions may come to be nothing but ramblings of a cynic, but if we do not act quickly I do believe that things will get out of control. AI and bio cyber security are still relatively new and do not need immediate attention, but cyber crime has been around for many years and is only getting harder to stop, or convict.

While these problems may be thought by some as a tad exaggerated, it is crucial that we acknowledge that unless we address the issues regarding these areas, we will not be able to resolve them. The advancement of technology continues at an exponential rate, but our ability to

understand and prepare for all of the new technologies that will come into existence, is lagging far behind the rate of acceleration in today's technological era. Historically speaking when new technology has been created throughout human history, there are generally very few considerations made about what will be the impacts of those creations, as we tend to create technology and think about the problems it causes after we have created it. This holds true for all three areas of bio cyber security, cybercrime, and AI, as well as an ever growing amount of risk associated with creating new technology that possesses some of the highest level of potential.

If we are proactive in how we educate the public, we can potentially increase our chances of using the new technologies as a positive addition to society, as opposed to creating even more problems. If we do not carefully consider the future and do not exercise foresight, we may end up dealing with issues made by these technologies that we could have prevented had we exercised caution.

AI DISCLAIMER

I uses AI in only one section of my writing, I wrote my conclusion and put it through chat gpt to ask it how I can improve it. It told me to add more ethical things to it, so I did. That is all I used AI on this paper for.

REFERENCES

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